Earth Sciences Final Review (2017-2018)

Answer in full sentences on a separate sheet of paper. More details will help you learn better!

Astronomy

1. What are the two main types of telescopes? What are the two types of opticals?
2. What is a spectroscope? What is it used for? Explain how.
3. How can you measure the distance to a star?
4. Define: astronomical unit, light year.
5. Define: apparent magnitude, absolute magnitude, luminosity.
6. What is the Doppler effect? What does it tell us about a star?
7. Draw the Hertzsprung-Russel (H-R) diagram. Label all parts. Where is our sun?
8. Describe the life cycles of high, medium and low mass stars.
9. How did our solar system form?
10. Describe the Big Bang theory of the origin of the universe.
11. Draw a diagram of the universe. Include galaxies, quasars, solar system, stars, etc.
12. Describe: photosphere, chromosphere, corona, prominences, sunspots, flares, solar wind.
13. State Kepler's three laws.
14. What are the general features of each of the following: inner planets, outer planets, comets, asteroids, satellites (moons).
15. What are the differences between meteors, meteorites, meteoroids?
16. How do we know that the earth rotates on its axis? And that it revolves around the sun?
17. Why do we have seasons?
18. Explain the phases of the moon.
19. How is the moon related to the tides?
20. What are the pros and cons of space exploration?

Atmosphere

21. Draw a detailed diagram of the layers of the atmosphere. Label it well.
22. How are volume, density, pressure and temperature interrelated in the atmosphere? How do they each relate to low and high pressure regions?
23. Explain the greenhouse effect.
24. Define: conduction, convection and radiation.
25. On a non-rotating, land-free earth, what would the wind patterns look like?
26. What causes the Coriolis Effect? What does it cause?
27. Draw the hydrologic cycle.
28. Describe: cumulus, stratus, and cirrus clouds.
29. Describe: rain, hail, snow, sleet, dew, frost. Also explain how they form.
30. What are the main air masses and what type of weather is associated with them?
31. What is a front?

Rocks and Minerals

32. What are the two main elements in the earth's crust in order of abundance?
33. What is the difference between rocks and minerals?
34. What properties and simple tests are used to identify minerals?
35. What are some ways you can tell igneous, sedimentary, and metamorphic rocks apart?
36. How do the three rock types each form?
37. Draw and explain the rock cycle.
38. What is the relationship between an igneous rocks crystal size, cooling rate and where it formed.

Resources

39. What are some of the minerals that are mined in BC? Where and why?
40. How is coal formed? How is oil formed?
41. What are five methods of mining?
42. How is coal used? How is zinc used?
43. What environmental problems are associated with mining?
44. Define: renewable and non-renewable resources.
45. How could we conserve resources?

Tectonics and Volcanism

52. Where are most volcanoes and earthquakes located?
53. What are several pieces of evidence that the plates are and have been moving?
54. Define diverging, converging and sliding boundaries.
55. How is folding and faulting related to mountains?
56. What are the types of faults and folds? Draw them.
57. How is it believed that the plates move?
58. What is the difference between magma and lava?
59. What type of eruption and volcano type does each of the following produce: rift eruption? hotspot eruption? subduction boundary eruption?
60. What do each of the following look like: cinder cone, composite volcano, shield volcano, basalt plateau?
61. Define dike, sill, batholith, stock, neck and laccolith.
62. Describe geysers, fumaroles, and hot springs.

Tectonics and Earthquakes

63. Explain the elastic rebound theory.
64. Draw the P, S, and L wave chart.
65. Explain how to locate the epicentre of an earthquake.
66. Explain how a seismograph works.
67. What is the difference between magnitude and intensity (earthquake damage)?
68. What are scientists using to attempt to predict a) volcano eruptions b) earthquakes.

Geologic Time

76. Define: relative time, absolute time
77. Define: law of superposition, law of cross-cutting relations, law of included fragments, and unconformity.
78. How is the age of a rock determined by using radioactive elements?
79. What is a varve?
80. Describe several ways that fossils can form.
81. What is an index fossil?
82. Write out the eras and periods of the geologic timescale in order.
83. What order did life develop in, according to the fossil record?
84. Why are fossils rare in Precambrian rocks?

Geology of BC

85. Describe how it is believed that BC formed geologically. Include where and why resources are found, the rock types, the shape of the land (when originally formed and how it was changed since then), etc.